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BRIEF REPORTS

Relationship Commitment and Its Implications for Unprotected Sex Among Impoverished Women Living in Shelters and Low-Income Housing in Los Angeles County

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Objective: To examine how relationship commitment among impoverished women is associated with their frequency of unprotected sex. ***Design:*** Cross-sectional analyses were conducted on survey data from a probability sample of 445 women initially sampled from shelters and low-income housing in Los Angeles County. ***Main Outcome Measure:*** Frequency of unprotected sex in a typical month was derived as the product of 2 items: how often the woman had sex with her partner in a typical month and how often a male condom was used. ***Results:*** For both sheltered and housed women, relationship commitment predicted more frequent engagement in unprotected sex with their partner, even after controlling for the type of relationship (primary vs. casual). However, this association could not be accounted for by perceived partner monogamy, ability to refuse unwanted sex, perceived HIV susceptibility, and condom use self-efficacy. Among housed women only, never asking the partner to use a condom partially accounted for more frequent engagement in unprotected sex among women with stronger relationship commitment. ***Conclusion:*** Results emphasize the importance of relationship commitment issues in HIV prevention interventions with impoverished women, and the need for a better understanding of relationship commitment and its influence on condom use in this population.

Keywords: condom use, HIV/AIDS, impoverished women, relationship commitment

HIV/AIDS is a growing and persistent health threat to women in the United States, particularly young women and women of color (Centers for Disease Control and Prevention [CDC], 2004a). Heterosexual contact is the leading route of exposure for women, accounting for nearly 80% of HIV infections in this group (CDC, 2004b). Women who have sex with HIV-infected men are sometimes unaware of their partner's history of high-risk behavior, such as having unprotected sex with multiple partners, sex with other men, or injection drug use (Hader, Smith, Moore, & Holmberg, 2001). However, this lack of recognition of partner risk cannot fully account for the spread of HIV among women. Many women with a seropositive partner, for example, engage in inconsistent condom use (Dublin, Rosenberg, & Goedert, 1992). This suggests that relationship factors may be stronger determinants of women's condom use than perceived risk. Identifying these relationship factors and better understanding their influence on women's condom use is key to reducing the rates of HIV infection in this vulnerable segment of the population.

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It has been suggested that individuals in more committed relationships are less motivated to engage in HIV preventive behavior because as commitment increases, the focus shifts from self-protection and enhancement to relationship maintenance and enhancement (Misovich, Fisher, & Fisher, 1997). A growing literature provides support for this idea in that women at risk for HIV infection are less likely to practice safer sex if they report higher levels of relationship commitment (Castañeda, 2000) and involvement (Morrill, Ickovics, Golubchikov, Beren, & Rodin, 1996). Other studies similarly have found that women are less likely to use condoms with longer term or steady partners compared with casual partners (Marin, Tschann, Gomez, & Gregorich, 1998; St. Lawrence et al., 1998; Tortu, McMahon, Hamid, & Neaigus, 2000; Wingood & DiClemente, 1998), although at least one study of high-risk women has found that relationship commitment is a stronger predictor of condom use than length of time with a partner (Castañeda, 2000).

Together, the literature to date raises the possibility that having strong feelings of relationship commitment may undermine high-risk women's inclination or ability to engage in HIV self-protective behavior and points to the importance of better understanding the mechanisms through which this may occur. For example, women's relationship commitment may have a negative indirect effect on condom use through decreasing levels of communication about HIV-related issues and condom use with partners (Saul et al., 2000). At least in part, this may be because women who are more strongly committed to their relationship are less likely to see themselves as being at risk for HIV (Castañeda,

2000). It may also be the case that women who are strongly committed to their relationship are less inclined to engage in self-protective behavior because they worry about creating friction within the relationship; such women may report particularly low levels of condom use self-efficacy and a reluctance to refuse unwanted or risky sex with their partner.

The goal of this study was to gain a better understanding of relationship commitment and its association with unprotected sex among women in a segment of the population that is particularly vulnerable to HIV/AIDS: poor women of color (Amaro, Raj, Vega, Mangione, & Perez, 2001; CDC, 2004a). In a sample of 445 mostly African American and Latina women, who were sexually active and living in either a homeless shelter or HUD-subsidized apartment in Los Angeles County, California, our first aim in this study was to investigate associations of women's relationship commitment with other relationship characteristics (e.g., relationship duration, cohabitation status), as well as psychosocial and behavioral factors thought to be associated with more frequent engagement in unprotected sex (e.g., lower perceived HIV susceptibility, belief that partner is monogamous, less ability to refuse unwanted sex, never asking partner to use a condom, and lower condom use self-efficacy). The second aim was to investigate whether any of these psychosocial and behavioral factors could account for the expected positive association of women's relationship commitment with their frequency of unprotected sex.

Method

Participants

Participants in the original full sample were 898 women (460 sampled from shelters, 438 sampled from low-income housing) who were recruited for a study examining experiences of drug use, violence, and HIV risk among impoverished women (Wenzel et al., 2004). The study area was the central region of Los Angeles County (approximately a 15-mile radius from downtown Los Angeles). Women were eligible if they were ages 18–55 and spoke and understood English as their primary language. Trained female interviewers conducted individual computer-assisted face-to-face structured interviews. Ninety percent ($n = 810$) of participants completed a second face-to-face structured interview approximately 6 months later. The present analyses used data from the follow-up interview, when relationship commitment was assessed, and are restricted to women who participated in the follow-up interview and had either a primary or casual male sexual partner during the 6 months prior to the follow-up interview. We excluded women who were currently pregnant or not using condoms because they were trying to get pregnant, resulting in an analytic sample of 445 women. Descriptive statistics for the main study variables are provided in Table 1.

Study Design

Women we refer to as *sheltered* were sampled from 51 facilities in Los Angeles County with a simple majority of homeless residents (persons who would otherwise live on the streets or who sleep in shelters and have no place of their own). These facilities included homeless emergency shelters, transitional living facilities, single room occupancy hotels, board-and-care and voucher hotels, detox and rehabilitation centers, mental health facilities, and HIV/AIDS transitional homes in the study area. Women were selected by means of a stratified random sample, with shelters serving as sampling strata. A strict proportionate-to-size (PPS) stratified random sample would have been overly burdensome on the larger shelters. Thus, small departures were made from PPS and corrected with sampling weights. The baseline response rate was 86%, and the retention rate was 87% at follow-up. Note that

Table 1
Descriptive Statistics for Main Study Variables

Variable	Range	Sheltered women				Housed women			
		M	*Mdn*	*SD*	%	*M*	*Mdn*	*SD*	%
Age (years)	18–55	35.3	36.0	10.0		31.6	30.0	8.8	
Education (years)	5–20	12.1	12.0	2.3		12.4	12.0	1.5	
Race/ethnicity									
White (non-Hispanic)					17.8				1.4
Black (non-Hispanic)					54.9				69.8
Hispanic					19.9				25.8
Other					7.5				3.0
Frequency of unprotected sex (times/month)[a]	0–28.8	5.9	2.6	8.1		7.4	4.1	8.3	
Relationship commitment (1 = *low* to 5 = *high*)[a]		3.2	3.5	1.3		3.5	3.5	1.0	
Relationship duration (months)[a]	0–394	41.2	11.9	69.3		67.9	47.8	69.3	
Casual relationship					29.8				12.0
Primary relationship: noncohabitating					64.4				47.7
Primary relationship: cohabitating					24.5				45.8
Perceives partner is monogamous[a]					73.9				83.0
Ability to refuse unwanted sex (1 = *low* to 5 = *high*)[a]		4.5	5.0	0.9		4.6	5.0	0.7	
HIV susceptibility (1 = *low* to 5 = *high*)		1.8	1.3	1.0		1.7	1.0	0.9	
Ever asked partner to use condom (1 = *low* to 5 = *high*)[a]					48.9				42.4
Condom use self-efficacy (1 = *low* to 5 = *high*)		4.3	4.4	0.8		4.5	5.0	0.7	

[a] Descriptive statistics are based on a sample of 498 cases (sheltered: $n = 195$; housed: $n = 250$), of which 53 women had both a primary and a casual partner.

36% of the women we refer to as sheltered were living in a house or apartment (either their own or that of a partner, family member, or friend) at the time of the 6-month follow-up interview.

Women we refer to as *low-income housed* were sampled from Section 8 private project-based U.S. Department of Housing and Urban Development (HUD) -subsidized apartments in the study area. To qualify for Section 8 housing, a person can make no more than 50% of the median income for Los Angeles County. We included all such apartment buildings within the study area that were reported by HUD to consist entirely of Section 8 project-based apartments not specifically designated to house elderly or disabled tenants. Housed women were drawn from 66 HUD Section 8 apartment buildings with buildings serving as sampling strata. As was the case for shelters, a PPS stratified random sample would have been overly burdensome on the larger buildings, so small departures were made from PPS and corrected with sampling weights. Once a unit was sampled from a building, we took a simple random sample of one woman resident within every selected unit. The response rate was 76% at baseline, and the retention rate was 93% at follow-up. A full description of the sampling design is provided elsewhere (Elliott, Golinelli, Hambarsoomian, Perlman, & Wenzel, 2006).

Study Variables

Control variables. These variables included age, years of education, and race/ethnicity.

Relationship characteristics. Women indicated whether in the past 6 months they had a *primary partner* (defined as a "steady" partner, such as a boyfriend or husband) and a *casual partner* (defined as a partner who is not steady like a boyfriend or husband but, instead, is more casual, such as "once in a while," "in the moment," or maybe "just for fun"). Women with a primary partner were asked whether they were currently living with that person. On the basis of this information, we created two dichotomous variables: partner type (primary vs. casual) and cohabitation status (cohabitating vs. noncohabitating). The length of women's relationships with primary and casual partners was measured in terms of number of months. In addition, women completed a four-item relationship commitment scale developed by Castañeda (2000) with reference to casual and primary partners. Sample items are "I am extremely committed to my relationship with my partner" and "Generally speaking, I have invested a great deal in my relationship" (1 = *strongly disagree* to 5 = *strongly agree*; $\alpha = .70$ for primary partners, and $\alpha = .83$ for casual partners).

Frequency of unprotected sex. Frequency of unprotected sex in a typical month was calculated, separately for casual partners and primary partners, by multiplying two items. The first item was how often the woman had sex with her partner in a typical month (*never*, *once a month or less*, *2–3 times per month*, *once a week*, *2–3 times per week*, *4–6 times a week*, *every day*), and this value was converted through linear interpolation into a point estimate of the number of days per month on which they had sex (using 0, 1.1, 2.6, 5.5, 12.2, 21.7, 28.8, respectively). The second item was how often a male condom was used when she had sex with her partner (*always*, *more than half the time*, *about half the time*, *less than half the time*, *never*), and this value was converted into an estimate of the proportion of sexual acts that were unprotected (using 0, .25, .50, .75, 1, respectively). These two values were multiplied to generate an estimated number of occasions of unprotected sex in a typical month.

Perceived partner monogamy. Women were asked whether, to the best of their knowledge, their casual or primary partners had sex with anyone else during their relationship.

HIV self-protective behavior. Women were asked whether they had ever asked their casual partners and primary partners to use condoms during the past 6 months (*yes/no*). General self-efficacy for condom use was assessed with a five-item shortened version of the Self-Efficacy to Condom Use Scale (Jemmott & Jemmott, 1991; 1 = *strongly disagree* to 5 = *strongly agree*; $\alpha = .60$). Women's assertiveness in refusing unwanted sex from their casual partners and primary partners was measured by a two-item version of the Refusal Assertiveness subscale of the Sexual Assertiveness Scale (Morokoff et al., 1997; $\alpha = .84$ for primary partners, and $\alpha = .95$ for casual partners). A sample item is "Over the past 6 months, how often did you give in and have sex if your partner pressured you, even if you already said no?" (1 = *never* to 5 = *always*). Finally, women completed a three-item measure of their perceived susceptibility to HIV (1 = *strongly disagree* to 5 = *strongly agree*; $\alpha = .65$). For each scale, scores were reversed, as necessary, so that higher scores indicated stronger feelings of self-efficacy, greater assertiveness in refusing unwanted sex, and greater perceived susceptibility to HIV.

Statistical Methods

The use of a disproportionate random sampling technique and differential nonresponse rates at baseline require the use of design and nonresponse weights to represent the target population from the sample of respondents. All analyses incorporated these weights and accounted for the modest design effect that they induce, using the linearization method (Skinner, 1989). There was a small amount of missing data for some variables (generally $\leq 0.5\%$). We imputed the mean value for continuous and ordinal predictor variables and imputed the modal value for unordered predictor variables. We did not impute missing data for the frequency of unprotected sex variable. For these longitudinal analyses, we considered constructing attrition weights to adjust for possible biases induced by nonresponders. However, after a careful analysis, we could not find any baseline variables that were significant predictors of attrition. Results of this analysis, combined with the excellent retention rate of 90% overall, suggested that nonresponse bias was minimal; hence, no attrition weights were built.

Linear regression analysis was used to investigate the correlates of relationship commitment (Table 2), whereas negative binomial regression analysis was used to investigate the predictors of frequency of unprotected sex (Table 3). Negative binomial regression analysis was used in the latter case because the dependent variable (frequency of unprotected sex) involved overdispersed and positively skewed quasi-count data, violating the assumption of normal and Poisson distributions (McCullagh & Nelder, 1989). The negative binomial distribution is a generalized case of the Poisson distribution, with regression coefficients from negative binomial models interpreted similarly to those from Poisson regression models, in that (when exponentiated) they indicate multiplicative effects on the rate of the outcome. For the analyses presented in Table 3, we first individually modeled each predictor variable, and those that were associated with frequency of unprotected sex at

Table 2
Bivariate Linear Regression of Relationship Commitment With Other Relationship Characteristics; HIV-Related Beliefs, Attitudes, and Behaviors; and Demographic Characteristics

Predictor variable	Sheltered women *b*	Housed women *b*
Perceives partner is monogamous	.99***	.74***
Ability to refuse unwanted sex	−.11	.06
HIV susceptibility	−.11	−.12
Ever asked partner to use condom	−.20	−.61***
Condom use self-efficacy	.05	.01
Relationship type		
Primary partner vs. casual partner	1.42***	1.27***
Cohabitating vs. noncohabitating	.79***	.74***
Relationship duration	.51**	.33***
Age	−.05	.02
Education	.03	−.11
Race/ethnicity		
Hispanic (vs. African American)	.18	.15
White/other (vs. African American)	−.06	.02

Note. All continuous predictor variables are standardized.
** $p < .01$. *** $p < .001$.

$p < .05$ were retained for further analysis. All analyses were stratified by residential status (sheltered vs. housed). Note that 53 of the 445 women in our sample reported having both a casual partner and a primary partner in the past 6 months (although not necessarily concurrently). Women with both types of partners completed the following measures twice, once in reference to the primary partner and once in reference to the casual partner: frequency of unprotected sex, relationship commitment, relationship duration, perceived partner monogamy, ability to refuse unwanted sex, and whether she asked her partner to use condoms. A woman with both a primary partner and a casual partner in the past 6 months was treated as two separate cases in the analyses (thus, analyses were based on 498 dyads), with the analyses correcting for clustering at the level of the respondent. All analyses were conducted in SAS Version 9.

Results

Correlates of Relationship Commitment

As shown in Table 2, sheltered and low-income housed women who reported greater relationship commitment were more likely to have a primary partner (vs. a casual partner), to cohabitate with their partner (vs. not live with their partner), and to have a relationship of longer duration. Furthermore, women in both subsamples with greater relationship commitment were more likely to believe that their partner was monogamous than women with lower relationship commitment. Among housed women only, we found that those with greater relationship commitment were less likely to have asked their partner to use a condom in the past 6 months.

Predictors of Frequency of Unprotected Sex

The bivariate associations of the predictor variables with frequency of unprotected sex are shown in Table 3. As expected, relationship commitment was a strong and significant predictor of frequency of unprotected sex among both sheltered women (risk ratio [*RR*] = 1.53, $p < .001$) and housed women (*RR* = 1.47, $p < .001$). Specifically, a single standard deviation of relationship commitment was associated with about a 50% increase in the amount of monthly unprotected sex. This association remained significant ($ps \leq .002$) for both groups, even after controlling for relationship type (primary vs. casual). For sheltered women, three additional variables predicted more unprotected sex in the bivariate analyses: ability to refuse unwanted sex, never asking partner to use a condom, and being Hispanic (vs. African American). After controlling for each of these three factors, relationship commitment remained a strong predictor of frequency of unprotected sex (*RR*s = 1.45 to 1.53, $p < .001$). For housed women, unprotected sex was more frequent among women who had never asked their partner to use a condom, had lower condom use self-efficacy, and had less education. Women who were non-Hispanic White or of "other" race/ethnicity had less unprotected sex than African Americans. Relationship commitment remained a strong predictor of frequency of unprotected sex after controlling for each of three factors: condom use self-efficacy, education, and race/ethnicity (*RR*s = 1.44 to 1.49, $p < .001$). However, controlling for never asking the partner to use a condom reduced the association between relationship commitment and frequency of unprotected sex among housed women to nonsignificance (*RR* = 1.27, $p = .069$). Frequency of unprotected sex was not significantly associated in either group with whether women believed their partners were monogamous or how susceptible they felt to getting HIV/AIDS (all $ps > .05$).

Discussion

Results from this study suggest that relationship commitment is a key determinant of unprotected sex among impoverished women living in temporary shelters and low-income housing, extending

Table 3
Bivariate Negative Binomial Regression of Frequency of Unprotected Sex With Relationship Commitment; HIV-Related Beliefs, Attitudes, and Behaviors; and Demographic Characteristics

Predictor variable	Sheltered women *RR*	Housed women *RR*
Relationship commitment	1.53***	1.47***
Perceives partner is monogamous	1.01	0.68
Ability to refuse unwanted sex	0.79*	0.98
HIV susceptibility	1.08	0.95
Ever asked partner to use condom	0.45*	0.33***
Condom use self-efficacy	0.88	0.81*
Age	1.00	1.08
Education	0.91	0.83*
Race/ethnicity		
Hispanic (vs. African American)	2.10*	0.95
White/other (vs. African American)	1.29	0.33*

Note. *RR* = risk ratio. All continuous predictor variables are standardized.
* $p < .05$. *** $p < .001$.

prior research on somewhat less disadvantaged populations of women (e.g., Castañeda, 2000; Morrill et al., 1996). A particularly noteworthy finding is that relationship commitment appears to be a stronger predictor of unprotected sex than several psychosocial and behavioral factors that have been identified through meta-analysis as important predictors of heterosexual condom use (Sheeran, Abraham, & Orbell, 1999): perceptions of partner monogamy, feelings of susceptibility to HIV/AIDS, self-efficacy toward condom use, and communication about condoms. This finding is striking in that these other factors, specifically reflecting women's HIV-related attitudes and behaviors, should be more proximal determinants of their decision making about condom use than general feelings about their relationship.

Our results further indicate that the association between relationship commitment and unprotected sex cannot be explained easily in this population of impoverished women. Relationship commitment was strongly associated with perceiving the partner as monogamous in both subgroups of women; however, partner monogamy was not a significant predictor of condom use and, thus, could not explain the more frequent engagement in unprotected sex among women with higher relationship commitment. In general, HIV susceptibility, condom use self-efficacy, and ability to refuse unwanted sex were not associated with either relationship commitment or frequency of unprotected sex. As such, these factors could not account for the greater unprotected sex among women with stronger relationship commitment. For housed women, the only factor that could explain this association, at least in part, was asking the partner to use a condom: Stronger relationship commitment was associated with less communication about condoms, which, in turn, was associated with more frequent unprotected sex. In interpreting this finding, we can rule out the possibility that women with stronger relationship commitment were less likely to ask their partner to use a condom because they were trying to get pregnant (women who were pregnant or trying to get pregnant were excluded from analyses). However, we do not know whether less communication among women with greater relationship commitment has to do with their own or their partner's feelings about condoms or other factors. We acknowledge this as a limitation of the study.

In contrast, a different pattern emerged for sheltered women in that their level of relationship commitment was unrelated to whether they had ever asked their partner to use condoms. For sheltered women, whether they discuss condom use with their partner may be less strongly predicted by feelings of relationship commitment than by whether they are having sex with a risky partner or feeling susceptible to getting HIV/AIDS (both being more likely among sheltered than housed women). It may also be the case that the sexual encounters of sheltered women tend to be more furtive than those of low-income women (e.g., they live in a more structured environment and opportunities for sex are limited); if so, such contextual factors may have a stronger impact on whether sheltered women discuss condom use with their partners than their level of relationship commitment.

Results from this study challenge future research to better understand the meaning of relationship commitment and its consequences for engagement in unprotected sex among impoverished women. For women in general, those who feel more committed to their relationship may engage in unprotected sex because not using condoms symbolizes trust, intimacy, and commitment within the relationship (Misovich et al., 1997). Given the strong association of relationship commitment with relationship duration and cohabitation status, it may also be the case that perceived HIV risk is lower for women in more committed relationships because of increased knowledge of the partner (Ellen, Vittinghoff, Bolan, Boyer, & Padian, 1998), although this does not appear to be the case in our sample of women. For poor women of color, other factors may come into play. For example, it has been argued that violence, racism, incarceration, and lack of economic opportunity reduce the pool of potential male partners (St. Lawrence et al., 1998). For women who are homeless or living in temporary shelters, having a male partner may be particularly advantageous to the extent that this person can be relied on for economic support, a place to stay, physical protection, and so forth. The scarcity of available men, combined with women's reliance on these men for support, may tip the balance of power toward the male partner and erode women's ability to engage in HIV self-protective behavior such as condom use (Weeks, Schensul, Williams, Singer, & Grier, 1995). However, some prior research has indicated that the majority of low-income women feel that they have at least some control over condom use with their partner (Cabral, Pulley, Artz, Brill, & Macaluso, 1998; Soler et al., 2000). Important avenues to explore in future research include whether this holds true for homeless women (of whom more than 30% report experiencing recent psychological, physical, or sexual abuse from a male partner; Wenzel, Tucker, Hambarsoomian, & Elliott, 2006), as well as whether reliance on the partner for economic and other resources plays a role in feelings of relationship commitment and engagement in condom use in this population.

Results from this study emphasize the importance of addressing issues related to relationship commitment in HIV prevention interventions with impoverished women. Given that stronger relationship commitment may be associated with an illusion of safety or greater fear of losing the relationship (Pinkerton & Abramson, 1993; Sobo, 1993), there is a need to increase women's recognition of partner risk and their ability to negotiate safer sex in ways that do not threaten the relationship. Although introducing condoms into an ongoing relationship can be challenging, there is some evidence that interventions that emphasize communication and negotiation skills, strategies to develop assertiveness, and effective conflict resolution may be effective (e.g., El-Bassel et al., 2005; Theall, Sterk, & Elifson, 2003).

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